

i) providing a plant tissue sample to a bioreactor or cultivating plant cells or plant tissue in liquid medium in a bioreactor under conditions suitable for growth of the cells or tissue,

ii) inoculating the plant cells or plant tissue with a culture of Agrobacteria when suitable growth of the cells or tissues is obtained, the Agrobacteria containing a vector comprising a nucleotide sequence encoding the recombinant polypeptide [to the plant tissue sample;

iii) culturing the plant cells or plant tissue and the under conditions suitable for transfer of the nucleotide sequence to the plant cells or the plant tissue to thereby produce transiently transformed plant cells or plant tissue,

iv) growing the transiently transformed plant cells or plant tissue in liquid medium under conditions that enable the transiently transformed plant cells or tissue to transiently express the recombinant polypeptide; and

v) isolating the recombinant polypeptide from the transiently transformed cells or tissue,

wherein the conditions are monitored during step (i), (iii), and/or (iv) by measuring optical density, pH, temperature, nutrient levels, oxygen, conductivity, refractive index, osmolarity, calcium level of the medium, protein expression level, or a combination thereof.

Claim 3. The method according to claim 1, wherein said plant tissue] is a plant cell suspension culture.